

REMARKS

Claims 47-117 are now pending in the application. Support for the amendments to the claims can be found throughout the drawings and specification. As such, no new matter is added. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 103

Claims 47-114 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hisatsu (U.S. Pat. No. 3,617,855), Altmann et al. (U.S. Pat. No. 5,708,391), Hotta (U.S. Pat. No. 5,291,452), Andricos (U.S. Pat. No. 4,598,252), Kornfeld et al. (U.S. Pat. No. 5,974,041) in view of Oldham (U.S. Pat. No. 5,039,872), Metz (U.S. Pat. No. 4,481,480), Henderson et al. (U.S. Pat. No. 4,868,516), and Czarnocki (U.S. Pat. No. 4,656,871). This rejection is respectfully traversed.

With respect to claim 47, each of the above cited prior art references, either singly or in combination, fails to show, teach, or suggest at least that **the adjustable capacitance includes a pair of gain elements, and the adjustable capacitance is adjustable based on a control signal applied at a common node of the pair of gain elements.**

It is a longstanding rule that to establish a prima facie case of obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 143 (CCPA 1974), see MPEP §2143.03. Furthermore, when evaluating claims for obviousness under 35 U.S.C. §103, all of the limitations must be considered and given weight. *Ex parte Grasselli*, 231 USPQ 393 (Bd. App.

1983), MPEP § 2144.03. Here, the alleged combinations fail to disclose the limitation that the adjustable capacitance is adjustable based on a control signal applied at a common node of a pair of gain elements.

As shown in exemplary embodiments in FIGS. 2 and 4 of the present application, a plurality of amplifier cells 61, 63, and 65 are connected in parallel. Each of the plurality of amplifier cells 61, 63, and 65 is selectively controlled via a controllable current signal received from a controllable current source 45. As such, Applicants respectfully note that the transconductance of each of the plurality of amplifier cells is selectively controllable. As shown in FIG. 2 of the present application, outputs of each of the plurality of amplifier cells 61, 63, and 65 are connected to adjustable capacitances such as capacitive components 27 and 29. The capacitances are adjustable as described in Column 2, Lines 16-48. In other words, transconductance and capacitance are adjustable to accurately control a transconductance to capacitance ratio as described in Column 3, Lines 19-28).

More specifically, the capacitance includes a pair of gain elements 27, 29 such as insulated-gate field effect transistors. The source and drain of the transistors are connected in common as one capacitive electrode (i.e a common node, see Column 2, Lines 19-24). Gates of the transistors form another capacitive electrode. The gain elements forming the adjustable capacitance are adjustable based on a control signal (e.g. a control signal applied to the source/drain node via control input 33).

In contrast, the cited prior art references fail to disclose an adjustable capacitance that includes a pair of gain elements arranged as claim 47 recites. The Examiner acknowledges that none of the primary references appear to disclose this

limitation, but instead alleges that an adjustable capacitance “would have been obvious because it is old and well-known in the art to use adjustable capacitances connected to the output of amplifier cells.” Notwithstanding the Examiner’s assertion and without conceding that this limitation is obvious, Applicants respectfully note that claim 47 now recites that the adjustable capacitance includes a pair of gain elements that receive a control signal at a common node. Applicants respectfully submit that Hisatu, Altmann, Hotta, and Andricos appear to be similarly absent of any teaching or suggestion of an adjustable capacitance that includes a pair of gain elements according to Applicants’ claims.

As best understood by Applicants, Oldham, Metz, Henderson, and Czarnocki fail to make up for the deficiencies of the above primary references. For example, Oldham appears to disclose a variable capacitor 38. Applicants respectfully note that the capacitor 38 does not include a pair of gain elements arranged as Applicants’ claims recite. Similarly, capacitors 18, 20, and 22 of Metz do not include a pair of gain elements.

Henderson and Czarnocki similarly appear to be absent of any teaching or suggestion of an adjustable capacitor that includes a pair of gain elements. For example, Henderson disclose a capacitor 220 that is adjustable based on a multiplier K, not based on a control signal applied at a common node of a pair of gain elements. Similarly, a capacitor C_S of Czarnocki is adjustable based on a multiplier, not a control signal applied at a common node of a pair of gain elements.

Consequently, Applicants respectfully submit the each of the alleged combinations appears to be absent of any teaching or suggestion that the **adjustable**


capacitance includes a pair of gain elements, and the adjustable capacitance is adjustable based on a control signal applied at a common node of the pair of gain elements. In view of the foregoing, Applicants respectfully submit that claim 47, as well as its dependent claims, should be allowable for at least the above reasons. The remaining independent claims, as well as their corresponding dependent claims, should be allowable for at least similar reasons.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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By: 
Michael D. Wiggins
Reg. No. 34,754

Damian M. Aquino
Reg. No. 54,964

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

MDW/DMA/dms